

Title:

Nurses and allied professionals' engagement in clinical research-in-practice. A Statement of the Association of Cardiovascular Nursing & Allied Professions of the ESC

Short Title:

Nurses and allied professionals' engagement in clinical research-in-practice

Conflict of Interest:

The authors have no known or perceived conflict of interests.

Funding:

No funding was received for this work.

Authors:

Suzanne Fredericks^a, Julie Sanders^b, Maria Back^c, Lien Desteghe^{d-h}, Ana Gomes^{i,j}, Elena Marques-Sule^k, Maggie Simpson^l, Jeroen M Hendriks^{m,n,o}

Affiliations:

^a Professor; Daphne Cockwell School of Nursing, Toronto Metropolitan University; 350 Victoria St.; Toronto, ON; Canada; M5B 2K3; sfrederi@torontomu.ca; 416-979-5000 ext. 557978; ORCID: <https://orcid.org/0000-0002-7335-2803>; @SuzFredericks

^b Professor of Cardiovascular Care, Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, King's College London, London, UK and St Bartholomew's Hospital, Barts Health NHS Trust, London, UK. ; <https://orcid.org/0000-0002-7335-2803>; @julesanders2

^c Professor, RPT; Department of Occupational Therapy and Physiotherapy, Sahlgrenska University Hospital; Institute of Medicine, Department of Molecular and Clinical Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, <https://orcid.org/0000-0002-6031-7478>

^d Centre for Research and Innovation in Care (CRIC), Department of Nursing and Midwifery Sciences, University of Antwerp, Prinsstraat 13, 2000 Antwerp, Belgium; <https://orcid.org/0000-0001-8641-4658>

^e Research Group Cardiovascular Diseases, GENCOR, University of Antwerp, Prinsstraat 13, 2000 Antwerp, Belgium

^f Department of Cardiology, Antwerp University Hospital, Drie Eikenstraat 655, 2650 Edegem, Belgium

^g Faculty of Medicine and Life Sciences, Hasselt University, Martelarenlaan 42, 3500 Hasselt, Belgium

^h Heart Center Hasselt, Jessa Hospital, Stadsomvaart 11, 3500 Hasselt, Belgium

ⁱ Faculty of Health Sciences and Nursing, Universidade Católica Portuguesa, Porto, Portugal;
ORCID: <https://orcid.org/0000-0003-0941-8473>; @AnaFGomesNSp

^j Nurse Specialist, Local Health Unit – Aveiro Region; Clinical Academic Center Egas Moniz Health Alliance, Aveiro, Portugal

^k Professor of Physiotherapy; Department of Physiotherapy, University of Valencia. Gasco Oliag, 5. 46010. Valencia, Spain; elena.marques@uv.es; ORCID: <https://orcid.org/0000-0001-8554-5402>

^l Department of Cardiology, Queen Elizabeth University Hospital, NHS Greater Glasgow & Clyde, UK
<https://orcid.org/0000-0003-1781-4978> @m4ggiesimpson

^m Department of Nursing, Maastricht University Medical Centre, Maastricht, The Netherlands; ORCID: <https://orcid.org/0000-0003-4326-9256>

ⁿ Department of Health Services Research, Care and Public Health Research Institute, Maastricht University, Maastricht, The Netherlands

^o Centre for Heart Rhythm Disorders, University of Adelaide and the Royal Adelaide Hospital, Adelaide, Australia

CORRESPONDING AUTHOR:

Suzanne Fredericks RN, PhD, FESC, FCAN

Professor

Daphne Cockwell School of Nursing, Toronto Metropolitan University

350 Victoria St.; Toronto, ON; Canada; M5B 2K3

sfrederi@torontomu.ca; 416-979-5000 ext. 557978

ORCID: <https://orcid.org/0000-0002-7335-2803>; @SuzFredericks

ABSTRACT

Many nurses and allied professionals (NAPs) lack the skills, knowledge and confidence to engage in conducting and implementing research. Aim: This statement describes the importance of NAPs' involvement in clinical research within the context of cardiovascular care. Methods and Results: The existing gaps, barriers and enablers to NAPs involvement in research as a potential response to workforce issues in these professions as well as to contribute to excellence in patient care delivery and associated outcomes are identified. Specifically, career development pathways for NAPs are discussed. Conclusion: Finally, potential future directions for NAP research in clinical practice are provided.

1.0 INTRODUCTION

Research and associated scientific evidence underpins health policy and everyday clinical decision-making in all healthcare professions. Embedding research and evidence in practice is paramount for safe, high quality care delivery¹ generating improved patient outcomes² and reduced healthcare costs.³ Since nurses and allied professionals (NAPs) comprise over two thirds of the global healthcare workforce,⁴ their contribution to the generation, conduction, and use of research should be a key aspect of the professions and should have considerable and sustainable impact. Therefore, the expectation exists that research in the broadest sense should be fully integrated throughout clinical practice. As well, all nurses⁵ and allied professionals'⁶ clinical practice should be research-informed and based on the best available evidence. However, the reality is different. Not only is there an international deficit of research career pathways and roles for NAPs,⁷ but the application of evidence-based practice (EBP) is inconsistent with considerable variation in nurses' engagement with research being evident.⁸ Thus, for the vast majority of NAPS worldwide, experienced-based practice remains the norm.

Recent years have seen an increased focus on research as a potential contribution to the NAP workforce. Emphasis has particularly been placed in addressing the global need to increase NAPs in senior health and academic positions⁹ in order to drive the development of the evidence-base for the professions.⁷ Less emphasis has been placed on promoting research awareness, culture and use in everyday NAP clinical practice, despite evidence highlighting those that value research are more likely to apply research in practice.¹⁰ Only 30% of allied professionals consider research to be part of their role,¹¹ with insufficient resources and the reporting of guilt if research is prioritised over clinical caseload¹² influencing this judgement. Likewise, nurses' interest and engagement in research is poorly sustained¹³ with many lacking basic research skills.¹⁴ In part, this is attributable to poor pre-registration

research education and exposure since newly qualified nurses also report they do not feel 'research informed'.¹⁵ However, in addition to the patient and organisational benefits of research-informed NAP clinical practice, value to the workforce is also evident, with additional skills, increased job satisfaction and career enhancement opportunities reported as benefits of engaging in research.¹⁶ These attributes are crucial for a depleted workforce likely to see a shortfall of >4.5million by 2030. Efforts to engage and promote nursing and the allied professions as a valuable career option with career development opportunities and clinical-academic roles to retain and attract more individuals into the professions is imperative for a sustainable future workforce.

Nurses and allied professionals play an important role in the advancement of cardiovascular research.¹⁷ Within cardiovascular settings; NAPs design, implement, and lead research projects that have resulted in rapid clinical changes and improved patient outcomes.¹⁷ Furthermore, NAPs working in the cardiovascular setting have made significant research contributions in several critical areas of research that include risk factor modification and empowering patients in their self-management efforts.^{18,19} This body of work has not only enriched the evidence base for interventions and outcomes but has also influenced the formulation of guidelines and policies which has led to the creation and implementation of several clinical academic research programs.²⁰

The importance of creating and sustaining a positive research and EBP culture in NAP clinical practice is vital for maintaining and improving safety standards, care delivery, clinical and patient outcomes, professional development and advancing the professions. As well, NAPs engaged in research can help to address the impact of intersectional drivers of systemic inequality, in terms of "what, and who is studied" to inform the research agenda. Although some recent frameworks and tools have been published to address the undervaluing of research in practice, for example the Multiprofessional Practice-Based Research Framework²¹ and the Self Assessment Organisational Readiness Tool (SORT),²¹ there is limited advancement internationally.

Despite these initiatives, a consolidated approach is urgently needed to advance NAPs engagement in clinical research.²² This statement aims to emphasize the importance and impact of NAPs' engagement in research in clinical practice, highlight the barriers, gaps, and unmet needs, and provide suggestions for future directions and implications for practice to improve NAP research in clinical practice (Graphical abstract).

2.0 METHODS

2.1 Search Strategy

This statement is informed by articles retrieved from searching CINAHL, EMCARE, ProQuest Nursing, and PubMed databases. The search was restricted to English language articles using the following groups of MeSH headings and combinations of ‘clinical research’, ‘nursing’, ‘allied health professions’, ‘evidence-based practice’, and ‘research’.

Articles were searched using PubMed/MEDLINE, CINAHL, and EMCARE (1 January 2014 to 1 March 2024). The following search strategy that combines key terms was used: ("evidence"[All Fields] OR "evidences"[All Fields] OR "evident"[All Fields] OR "evidently"[All Fields]) AND ("clinical nursing research"[MeSH Terms] OR ("clinical"[All Fields] AND "nursing"[All Fields] AND "research"[All Fields]) OR "clinical nursing research"[All Fields]) AND ("allied"[All Fields] AND ("occupations"[MeSH Terms] OR "occupations"[All Fields] OR "profession"[All Fields] OR "professions"[All Fields] OR "profess"[All Fields] OR "professed"[All Fields] OR "professing"[All Fields] OR "profession s"[All Fields])) AND ("evidence based practice"[MeSH Terms] OR ("evidence based"[All Fields] AND "practice"[All Fields]) OR "evidence based practice"[All Fields] OR ("evidence"[All Fields] AND "based"[All Fields] AND "practice"[All Fields]) OR "evidence based practice"[All Fields]) (Supplemental File 1).

The reference list of articles retrieved was searched, as well publications that were part of personal databases or familiar to the co-author team, were included when suitable.

2.2 Definitions

“Nursing Research” and “Allied Health Professions Research” were defined as any research carried out by nurses and/or allied health professions, generally in clinical settings, in the areas of clinical practice, evaluation, nursing education, nursing administration, and methodology. Other entry terms included: Research, Nursing, Allied Health Professions.

“Clinical Nursing Research” and “Clinical Allied Health Professions Research” were defined as any research carried out by nurses and/or allied health professions in the clinical setting and designed to provide information that will support improve patient care and outcomes. Other entry terms included: Clinical Research, Nursing; Nursing Clinical Research; Allied Health Professions Clinical Research; Allied Health Professions Research, Clinical Nursing; Research, Nursing Clinical; Allied Health Professions Clinical; Clinical Practice Nursing Research; Clinical Practice Allied Health Professions; Nursing Research, Allied Health Professions Clinical.”

Since NAPs' ^{5,6} clinical practice should be at minimum, based on the best available evidence; this paper will refer to NAPs leading/engaging in research in practice, and not in clinical trial delivery, which is not an expectation for research informed practice.

3.0 NAPs ENGAGEMENT IN CLINICAL RESEARCH IN THE CARDIOVASCULAR SETTING: GAPS AND UNMET NEEDS

3.1 Creating the research culture

Even though the importance of NAPs engaging in research in the cardiovascular setting is recognized, progress has been slow in realising this. Similar to other clinical settings, NAP engagement in clinical research within the cardiovascular setting is inconsistent and marred by funding challenges, time constraints, in addition to lack of understanding of the research process. Regardless of diverse specialization, the absence or presence of opportunities, resources and support within an organization organisation influences the research culture that is required to promote a healthy environment for clinical NAPs practice.²³⁻²⁶ NAPs professionalism and academic reflection, as well as incorporation of evidence-based practice and research into daily practice in a supportive environment are essential facets of sustaining a research culture within the cardiovascular setting that can lead to an efficient utilization of research findings to practice.²³⁻²⁵ In addition, beyond "creating research cultures", clinical settings must change policy to ensure the shift in how research is integrated in practice. Individual, institutional and organisational barriers impact the development of such research environments.^{17, 24,}

²⁶

3.2 Role models and senior healthcare leaders

Furthermore, acceptance, mentorship, and role modeling by senior leaders and management in healthcare is vital for clinical research to be valued. This requires a passionate and qualified leader to provide guidance and motivation for clinical NAPs.²³ Thus, managers and stakeholders must advocate for initiatives that promote research interest and utilization,^{23, 27} that include the creation of career development pathways and clinical research mentorship initiatives for NAPs.

3.3 Research capacity

Research capacity includes the ability to conduct research; using, applying and undertaking research; and preparing NAP staff for such roles through exposure to research courses, workshops and educational sessions.^{28, 29} Building research capacity within the cardiovascular setting is crucial for developing a sound evidence-base to support decision making in clinical practice.^{17, 28, 30} One way in

which this can be achieved is through the creation of clinical academic roles within the cardiovascular setting in which NAPs are appointed by a university, with a mandate to spend approximately 75% of time focused on clinical research and leadership.³¹ The remaining 25% of time being focused on teaching at the University.³¹ Thus, to succeed in increasing research capacity, NAP research in the cardiovascular setting should be a core component of daily clinical practice, with the active involvement of NAPs in the research process.^{23,30}

4.0 BARRIERS AND ENABLERS

Research in clinical practice face numerous barriers across all levels (international and national, organisation and institutional, and individual) of healthcare impacting on the engagement and support of NAPs in clinical research. At the international and national level, limited research appraisal skills and awareness of the research processes exist, in addition to an underdeveloped research pathway, and reduced funding which serve to impede NAP preparedness and ability to engage in clinical research. Across healthcare organisations and institutions, a lack of protected research time, poor research infrastructure, and an outdated employment structure further compound this issue; while from an individual perspective there is a pressing need for mentorship and guidance in the engagement in research among NAPs. Thus, there is an increasing need for healthcare organisations to embed research appraisal skills into education programmes; create unique NAP focused career pathways; increase funding and supports in the form of mentorship; provide paid time to engage in research activities; provide professional development workshops; develop research intensive roles for NAPs; and facilitate the development of professional and multi- and interdisciplinary research team programs that are NAP-led (Supplemental File 2) (Figure 1).

5.0 CURRENT INITIATIVES TO PROMOTE RESEARCH IN PRACTICE

Limited evidence is available of initiatives that have been established to promote research in NAP clinical practice, although examples at organisational, regional and national level do exist. Centres in both the United States of America (USA) and Canada^{32, 33} have developed initiatives to embed participation in research studies across clinical care settings.^{34, 35} Although the development of an interdisciplinary framework to routinise RCTs in clinical practice was devised primarily for efficient trial delivery³³, Roll and colleagues³² actively engaged with direct care nurses to foster and maintain research in practice through the delivery of the Stories and Music for Adolescent/Young Adult Resilience during Transplant (SMART) study.³² Key benefits for clinical nurses included perceived

improved communication and integration between clinical and research staff, enhanced understanding of study protocols and research processes and career advancement through contributing to presentations and papers. Similarly, the introduction of an accessible, interactive and participatory journal club in a South African hospital to improve nurses' awareness and access of research highlighted key benefits to clinical nurses.³⁶ For the vast majority, the journal club was their main way of accessing research and practice-based evidence, and as such provided a sense of professional community and a safe forum to stimulate discussions and reflections on evidence for their practice. This 'safe space' was particularly important due to African nursing cultural norms around 'blame culture' and incident reporting.

In addition to organisational initiatives to embed research in practice in the clinical setting, efforts to create sustainable clinical academic infrastructures have also been introduced. In Portugal, clinical academic centres emerged in 2018 with the aim of creating a setting that would allow the sustained and integrated growth of care, education, clinical research and translation activities.³⁷ This permits hospitals, universities and primary care institutions to work together, strengthening their ties and create opportunities for common development. As a result, the clinical academic centers have become a model of care for providing better and more personalized care, more support for professionals undergoing in undergraduate and post-graduate studies, with dedicated time for research and more opportunities of funding with the direct link to the increase in research quality and scientific production.³⁷ Similarly, in Toronto, Canada an innovative professional development model for nurses has been introduced.³⁸ This 80/20 model, where 80% of time is for direct patient care and 20% of time on professional development (although not exclusively for research) demonstrated improved staff retention, reduced staff sickness, patient and staff satisfaction scores increased significantly.³⁸

Most examples to date appear to focus on stimulating research in practice for nurses. However, there is a real need to do so within the 'research emergent' allied professions.³⁹ As in nursing, a disconnect between clinical practice and research is acknowledged, where greater engagement in research in practice may facilitate greater generation and use of evidence in practice. In Australia, the establishment of a regional practice-based physiotherapist research network was considered a quality marker for improvement, generated practice-appropriate research priorities, and a perceived value in reducing variations in practice and improving patient outcomes across the region.²

In England, a more national approach to clinical research has been taken both in nursing and the allied professions. National research strategies for nursing,⁴⁰ allied health professionals⁴¹ and health care science⁴¹ serve to embed research in practice and professional decision-making. In addition, two programmes, the NIHR 70@70 (2019-2022) and the NIHR Senior Research Leader (SRL) (established

2023) have been established to support the implementation of the strategies, specifically focussing on promoting and embedding a research culture and building research capacity in NAP practice. As a consequence of the national vision, healthcare organisations across the country are also investing in research in practice initiatives and leadership. Specifically from a cardiovascular perspective, St Bartholomew's Hospital, host to one of the largest cardiovascular centres in Europe, provides a wide-ranging research in practice programme which includes a research ambassador programme,⁴² early career nurse preceptorship,⁴³ bespoke programmes for allied professional⁴⁴ and ward managers⁴⁵ to create and sustain a positive research culture in the clinical environment and a model of embedding post-doctoral clinical academic careers in practice.⁴⁶

6.0 DISCUSSION

Based on the barriers, enablers, gaps and current initiatives, specific strategies can be considered to promote engagement in research at the bedside and in clinical practice within the cardiovascular setting. Specifically, Pager et al.³⁹ identified the need to build research capacity. Capacity building will provide a foundation for the creation of a research infrastructure that will lead to the engagement and maintenance of evidence-based initiatives. This has been shown to enhance quality of care provided to patients; while promoting the delivery of effective and cost-efficient treatments.⁴⁷ Increasing research capacity requires NAPs to not only lead the production of new knowledge, but to take an active role in the dissemination and application of high-quality evidence in practice.⁴⁷

Moreover, novel models of care have been established based on the concept of integrated care, which presents a systems approach by fusing crucial fundamentals with the aim to provide holistic and comprehensive care and treatment to improve outcomes.⁴⁸ These models of care have been adopted by clinical guidelines such as the 2016 European Society of Cardiology guidelines for the management of atrial fibrillation for nurses and allied health professionals⁴⁹ and entail significant roles for NAPs⁴⁹ which enable them to pursue or lead research at the patient and clinical level, may contribute to interprofessional collaboration, and importantly may also be a basis for clinical-academic nursing research pathways. In times of NAPs workforce issues this is a crucial aspect in the retention of highly skilled and experienced professionals. Although research has demonstrated the effectiveness of nurse-led integrated care approaches applied to certain cardiovascular conditions,⁵⁰ other research priorities in this area may include implementation of holistic research designs and the use of co-design, incorporating perspectives from all players involved, as well as to investigate the specific impact OR value of the role of NAPs in such models of care,⁴⁸ amongst other crucial topics.⁵¹

Segrott et al.⁵² suggest the need for the creation of appropriate research leadership positions in the form of research team leaders, managers, and supervisors. These individuals will serve to provide strategic direction and support to NAPs who are leading research activities that include, but are not limited to manuscript writing, preparation of grant applications, consent acquisition, data collection, recruitment, and data analysis. In addition, ensuring individuals with research experience are readily available to mentor and train NAPs with limited research skills should be a priority for organizations.⁵³ Furthermore, the provision of resources and supports in the form of funding and protected time should be in place to allow for appropriate training and credentialing. Thus, there is a need to promote different ways of thinking about the role of NAPs in research. Opportunities for joint appointments, if appropriate and professional development that will result in career advancement and leadership roles for NAPs who are leading research activities should be taken into account.

The foundation of care provided by NAPs is based on patient engagement and their active involvement in the care process, based on their preferences, aligned with the latest evidence. Thus, one way in which all NAPs can engage in research within the clinical environment is through the delivery of care that is based on evidence based practice, as this has been shown to be scientifically valid.⁵⁴ Care grounded in EBP allows clinicians to make informed decisions based on the best available evidence that has been rigorously evaluated. However, for care to be underpinned by EBP, NAPs need to understand the associated principles; as well as, have the skills to be able to read, critique, and apply research evidence into their clinical practice.²⁹ For this to occur, the appropriate mechanisms need to be in place to support NAPs to attend educational and scientific events to hear about the latest research from key opinion leaders; have protected time to search library databases and other sources for best available evidence; and to seek out role models and other resources for support their learning in this area.

Finally, Käser et al.⁵⁵ suggest the development of career pathways for NAPs engaged in clinical research. This consists of creating different clinical research roles that vary in how each are presented, as well as the type of involvement in research that is required. In addition to creating new clinical roles, infrastructure to support continued learning in the areas of clinical academic research is needed. This infrastructure for learning will provide NAPs with the needed knowledge and skills.²⁴ Furthermore, opportunities for funding for novice NAPs to engage in small scale clinical research projects are required. All of these career pathway initiatives serve to increase awareness among NAPs, while promoting a culture of inquiry, problem solving, and critical thinking.³⁰

The European Society of Cardiology (ESC), Association of Cardiovascular Nursing & Allied Professions (ACNAP), and the other ESC and national associations have a crucial role in assisting in the promotion, education and guidance of the engagement of NAPs in clinical research. Through these initiatives, ESC creates a supportive environment that empowers NAPs to engage in research activities, ultimately enhancing the quality of care for patients via evidence-based practice.

7.0 IMPLICATIONS FOR PRACTICE: MOVING FORWARD

Given the potential implications the research-practice gap has on quality and safety, identification of strategies that may narrow the gap, should be an important focus of attention for nurse leaders and researchers. Based on the discussion, specific strategies are put forward to support NAPs engagement in clinical research in the cardiovascular setting. These strategies are presented from an international, organizational, and individual level.

7.1 International/National level

7.1.1 International training courses/workshops. Training of NAPs can be facilitated using existing infrastructures provided by professional organisations. One such channel is the European Society of Cardiology's (ESC) educational resources in general cardiology and subspecialties. These resources provide interactive, evidence-based programmes in support of continuing health professional training, are offered in person or online, and led by experts in cardiology. These programmes are characterized by content that is current and up-to-date and have specific educational workshops that address research methodology and training, as well as career development. The 'All About Clinical Trials' course provides students and trainees with an opportunity to acquire or improve knowledge and clinical skills in clinical trial design, management and data interpretation. Furthermore, ESC also offers clinical trials courses, pre-conference workshops, webinars, mentorship and special NAP focused research discussions during large (inter)national conferences.⁵⁶

In addition, the *European Journal of Cardiovascular Nursing's* "Knowledge Translation (KT) Corner" identifies methods to enhance the accessibility of KT science for all stakeholders and explore opportunities for partnering with patients and the public to develop and embed evidence in practice with the aim of improving outcomes, implementing effective and sustained health services, and promoting equity.⁵⁷

7.1.2 Networking and International Collaboration. International collaboration provides an opportunity to merge health care activity and related research practices across countries. It is a process that can lead to increased research productivity, enhanced patient outcomes, expanded networking opportunities, and creation of international health policies and practice guidelines.⁵⁸ International research collaboration is more recently being viewed as an indicator of quality and a way in which to develop and disseminate scientific knowledge to newly developing countries.⁵⁸ The European Society of Cardiology (ESC) offers opportunities for such international collaborations and networking. Specifically, ESC's Association for Cardiovascular Nursing & Allied Professions' (ACNAP) committees engage NAPs from around the world to collaborate on the development and testing of initiatives aimed at assisting patients in the prevention, adjustment to and recovery from cardiac illness (<https://www.escardio.org/Sub-specialty-communities/Association-of-Cardiovascular-Nursing-&-Allied-Professions/About>). NAPs work together and provide different perspectives for each of these projects/ initiatives.

7.1.3 Scientific Journals. Journals and other scholarly resources are an excellent source for research methods information that can be used by NAPs to guide their engagement in clinical research. For example, the *European Journal of Cardiovascular Nursing* has a section titled *Methods Corner*. The purpose of this section is to improve the area of research in cardiovascular care by publishing new research methods and addressing misconceptions about established methods. These papers provide a hands-on-focus and are usually accompanied by a video tutorial that can then be used as part of journal clubs, classes, and research.⁵⁹ The ACNAP r for NAPs²⁹ provides the fundamental knowledge, skills and attitudes required of NAPs working in cardiology and emphasises throughout the importance of evidence based practice.

7.1.4 International mentoring programs. To establish new career pathways and obtain development advice and guidance in research, initiatives such as the ACNAP mentoring program are ideally suited to enhance personal and research skills. Advice on how to choose a (PhD) supervisor or tips or courses on how to enhance funding success are helpful initiatives.^{60, 61} Educational grants and reduced congress fees for NAPs can lower the threshold to get emerged into research. ESC and its associations also have links to National Cardiovascular (Nursing) associations and national NAP ambassadors that can be approached for building networks, dissemination, and engaging in mentorship relationships. As well, the ESC Patient Forum can be used as a direct resource for NAPs to contact for design of research topics, to identify gaps in clinical practice, and to identify patients to collaborate with on the co-design of research projects. Finally, the creation of a working group within the ESC's ACNAP Science Committee

that consist of a community of advocates to explore and address NAPs clinical research issues, as well as to provide mentorship should be taken into account.

7.2 Organization/Institutional level

7.2.1 Capacity building. Within organizations, capacity building is required at individual, team, and organizational levels; and requires resources, funding, networks, and appropriate infrastructure to maintain this initiative.⁶² Dorgan²⁸ identifies a first step in building research capacity within organizations is through the creation of a steering committee associated with a clinical trial, to guide the planning, development and implementation of this initiative. Job descriptions for NAPs roles refer to the need for the NAP to apply evidence to practice and contribute to research and audit.

7.2.2 Research leadership opportunities. The integration and/or creation of job descriptions throughout organizations that clearly delineates the need to engage in research mentorship and training will help to support this initiative. Moreover, the creation of 'research only' staff positions where one of the main activities as supporting and mentoring of clinical staff will enhance the culture of research being adopted and implemented by organizations.

7.2.3 Career pathways. Creating specific research related roles within organizations can serve to highlight not only the importance of NAP engagement in clinical research, but to ensure that these roles are integrated into the daily functioning of the organization. An example of such a role is that of a 'research champion' who works to promote active engagement in evidence-based practice by facilitating workshops, as well as mentoring of staff. This could also be in the form of a clinical academic to create a bridge between the clinical setting/institution and the academic setting. Another role is that of a 'clinical researcher role' that consists of NAPs moving away from providing clinical care to primarily spending their time engaged in the production of new knowledge through clinical research-based activities. This could be crucial for current and future NAP workforce, as it encourages the involvement of NAPs in research while allowing them to stay engaged in clinical practice.

7.2.4 Infrastructure to support learning. Organizations can also create professional development programs, masterclass sessions, webinars, research networks, journal clubs, and opportunities for hands on engagement in new and existing research projects are needed for NAPs to remain up to date and to aid in collaboration. Universities also have a role as well to provide financial support (grant funding) and to engage in relationship building between clinic and hospital and other industry partners.

Hospitals and universities can also support NAPs by providing them with access to academic infrastructure such as online databases, subscriptions to journals, statistical software, and statistical and research support. Joint funding initiatives could facilitate further collaboration between academics and clinical teams. An increased collaboration between these institutions can foster partnerships that can facilitate the access to resources in general and improve interdisciplinary collaborations.

7.2.5 Hybrid training. The various educational and training programs can be offered either through online, in person or a combination of online and in person means to increase reach. Finally, there should be a consideration for the creation of new initiatives and incentives for recognition such as the confirming of doctoral degrees, research training certificates, and other recognition at congresses.

7.2.6 Evaluation of training programs. Finally, organizations should have the infrastructure to allow for consistent evaluation of education programs to determine their effectiveness. Specifically, the evaluation can assess if there is sufficient focus on providing education (and a focus on the importance) of NAP research, the acceptability of the content, whether it is being delivered in a way that allows NAP graduates are able to perform basic research techniques, and if it assists with dissemination of findings via various mediums.

As well, the use of multidimensional strategies (i.e. combination of the above strategies) can be considered, if appropriate.

7.3 Individual level

7.3.1 Professional Responsibility. Individual NAPs have a professional responsibility to keep abreast of current evidence and to, at minimum, use this evidence to inform their practice. In order to achieve this goal, NAPs should recognise the skills needed to appraise research, regularly review contemporary research and possess the abilities to effectively convey this information to the clinical team. (e.g. Journal Club). Professional organizations such as ESC could be of support here through the various opportunities that they provide that include membership, mentorship, networking, career opportunities, and research engagement and training.

NAPs that do not have advanced education and training in research methods also have a responsibility to seek out this training by attending online/in person workshops/masterclasses that address research issues, seeking out research mentors and available mentorship programs, and searching for

opportunities to collaborate on manuscript writing, conference presentations, and engagement in research studies (at a NAP but also multidisciplinary level).

7.3.2 Professional Identity and Leadership. By engaging in research activities, NAPs are expanding and creating their own professional identity, which can lead to enhanced funding opportunities, creation of new leadership positions, as well as the expanding and reshaping of NAP professional values.⁶³

As well, effective research leadership is essential to address the institutional barriers to engagement in research and to foster the development of research intensive environments within the clinical setting. Thus, communities can be created that encourages collaboration between NAPs, support collegiality, and creates an environment that respects and values NAP research endeavors.^f This can be achieved through creation of a research community within the clinical setting, regular celebration of research success, leading the development of research mentorship opportunities for junior/novice clinical staff, and encouraging research autonomy among colleagues.⁶⁴

8.0 CONCLUSION

All nurses and allied professionals' clinical practice should be research-informed and based on the best available evidence. A consolidated approach is urgently needed to advance NAPs engagement in clinical research. This ACNAP statement aims to contribute to this by describing the importance of NAPs' involvement in clinical research within the context of cardiovascular care, and identifying the existing gaps, barriers and enablers to NAPs involvement in research. International training courses/workshops, networking, collaboration, and mentorship opportunities; increase capacity building, research infrastructure, leadership positions, and career pathways across organisations and institutions; and expanding individual's professional identity have been put forward as specific strategies to support NAPs engagement in clinical research in the cardiovascular setting.

9.0 Data Availability Statement

We do not have any data, as this is a statement piece

10. REFERENCES

1. International Council of Nurses. (2012). Closing the gap: From evidence to action.
2. Gleadhill C, Williams CM, Kamper SJ, Bolsewicz K, Delbridge A, Mahon B, et al. Meaningful coproduction with clinicians: establishing a practice-based research network with physiotherapists in regional Australia. *Health Res Pol Syst.*2023; 21(1):38.
3. Connor L, Dean J, McNett M, Tydings DM, Shrout A, Gorsuch PF et al. Evidence-based practice improves patient outcomes and healthcare system return on investment: findings from a scoping review. *Worldviews Evidence-Based Nurs.*2023;20(1):6-15.
4. Boniol M, Kunjumen T, Nair TS, Siyam A, Campbell J, Diallo K. The global health workforce stock and distribution in 2020 and 2030: a threat to equity and 'universal' health coverage?. *BMJ Global Health.*2022;7(6):e009316.
5. Ward V, Tooman T, Reid B, Davies H, Marshall M. Embedding researchers into organisations: a study of the features of embedded research initiatives. *Evidence Pol.*2021;17(4):593-614.
6. Harris J, Cooke J, Grafton K. Shaping better practice through research: A practitioner framework. 2019;CAHPR.
7. Trusson D, Rowley E, Barratt J. Multimethods study comparing the experiences of medical clinical academics with nurses, midwives and allied health professionals pursuing a clinical academic career. *BMJ Open.* 2021;11(4):e043270.
8. Perälä ML, Pelkonen M. Networking for the advancement of nursing research in Europe for twenty-five years. *Int J Nurs Pract* 2004;10(1):54-55.
9. World Health Organization. (2021). Global strategic directions for nursing and midwifery 2021-2025. *WHO*.
10. Yoder LH, Kirkley D, McFall DC, Kirksey KM, Stalbaum AL, Sellers D. CE: Original Research: Staff nurses' use of research to facilitate evidence-based practice. *Am J Nurs.*2014;114(9):26-37.
11. Matus J, Wenke R, Hughes I, Mickan S. Evaluation of the research capacity and culture of allied health professionals in a large regional public health service. *J Multidiscip Healthcare.*2019:83-96.
12. Cordrey T, King E, Pilkington E, Gore K, Gustafson O. Exploring research capacity and culture of allied health professionals: a mixed methods evaluation. *BMC Health Serv Res.*2022;22(1):85.
13. Lieschke G, Giles M, Ball J, Ohr SO, Parker V. Towards translational research participation for nurses and midwives: a mixed method study. *BMC Nurs.*2022;21(1):50.
14. Smith S, Gullick J, Ballard J, Perry L. Clinician researcher career pathway for registered nurses and midwives: a proposal. *Int J Nurs Pract.*2018;24(3):e12640.

15. McCormack B, Baltruks D, Cooke R. Becoming research confident Research in pre-registration curricula for nursing, midwifery and allied health programmes in the UK. *Council of Deans*.2019.
16. Wenke RJ, Mickan S, Bisset L. A cross sectional observational study of research activity of allied health teams: is there a link with self-reported success, motivators and barriers to undertaking research?. *BMC Health Serv Res*.2017;17:1-10.
17. Ski CF, Thompson DR. Cardiovascular nursing research: challenges and opportunities. *Eur J Cardiovasc Nurs*.2011;10(1):1-2.
18. Stamp KD, Prasun M, Lee CS, Jaarsma T, Piano MR, Albert NM. Nursing research in heart failure care: a position statement of the american association of heart failure nurses (AAHFN). *Heart Lung*, 2018;47(2):169-175.
19. Jaarsma T, Hill L, Bayes-Genis A, La Rocca HPB, Castiello T, Čelutkienė J et al. Self-care of heart failure patients: practical management recommendations from the Heart Failure Association of the European Society of Cardiology. *Eur J Failure*.2021;23(1):157-174.
20. Wenke R, Mickan S. The role and impact of research positions within health care settings in allied health: a systematic review. *BMC Health Services Research*. 2016;16(1):1-10.
21. England NHS. (2024). Self-Assessment of Organisational Readiness Tool (SORT). *NHS England, London: NHS England*.
22. Lee G, Hendriks JM. From bench to bedside: how do we advance clinical research for nurses?. *Eur J Cardiovasc Nurs*. 2024;zvae026.
23. Berthelsen CB, Hølge-Hazelton B. 'Nursing research culture' in the context of clinical nursing practice: Addressing a conceptual problem. *J Adv Nurs*.2017;73(5):1066-1074.
24. Shepherd M, Endacott R, Quinn H. Bridging the gap between research and clinical care: strategies to increase staff awareness and engagement in clinical research. *J Res Nurs*. 2022;27(1-2):168-181.
25. Roddam H, Cross L, Georgiou R, Gibson J, Jones S, Olive P et al. Developing clinical academic researchers: insights from practitioners and managers in nursing, midwifery and allied health. *British Journal of Healthcare Management*.2019;25(9):282-292.
26. Watson J, Robertson S, Ryan T, Wood E, Cooke J, Hampshire S et al. Understanding the value of a doctorate for allied health professionals in practice in the UK: a survey. *BMC Health Serv Res*. 2024 May 2;24(1):566. doi: 10.1186/s12913-024-11035-7.
27. Akerjordet K, Lode K, Severinsson E. Clinical nurses' attitudes towards research, management and organisational resources in a university hospital: part 1. *Journal of Nursing Management*.2012;20(6):814-823.
28. Dorgan S. Building research capacity and capability in the nursing, midwifery and allied health professions. *Br J Nurs*.2018;27(11):634-635.
29. Neubeck L, Ross C, Jones J, Simpson M, Mindham R et al. The Core Curriculum for Cardiovascular Nurses and Allied Professionals. *Eur J Cardiovasc Nurs*.2023;22(7):<https://doi.org/10.1093/eurjcn/zvad035>

30. Harvey D, Plummer D, Nielsen I, et al. Becoming a clinician researcher in allied health. *Aust Health Rev* 2016; 40: 562-569. DOI: 10.1071/ah15174.
31. Lauck S, Thorne SE, Saewyc EM, Heppell L, Black AT, Virani SA. Promoting cardiovascular nursing practice and research: A model for a university joint appointment. *J Clin Nurs*.2022;31(3-4):311-317.
32. Roll L, Stegenga K, Hendricks-Ferguson V, Barnes YJ, Cherven B, Docherty SL et al. Engaging nurses in research for a randomized clinical trial of a behavioral health intervention. *Nurs Res Pract*.2013.
33. Team V, Weller CD. Randomised controlled trials as part of clinical care: a seven-step routinisation framework proposal. *Int Wound J*.2019;16(2):442-458.
34. Fish JA, Rickard CM, Gray R, Middleton S, Homer C, Keogh S et al. Nurse-and midwife-led trials in Australia and New Zealand: Scoping review protocol. *Collegian*.2022;29(5):793-798.
35. Homer C, Neylon K, Kennedy K, Baird K, Gilkison A, Keogh S et al. Midwife led randomised controlled trials in Australia and New Zealand: A scoping review. *Women Birth*.2023;36(5):401-408.
36. Leonard A, Power N, Mayet S, Coetzee M, North N. Engaging nurses in research awareness using a new style of hospital journal club-a descriptive evaluation. *Nurs Educ Today*.2022;108:105123.
37. Decreto-lei Nº 61/2018 In Diário da República, 1ª série Nº149 (03-08-2018), Pgs. 3771-3777. Available from: https://www.fct.pt/wp-content/uploads/2022/05/DL_61_2018.pdf
38. Bournes DA, Ferguson Paré M. Human becoming and 80/20: an innovative professional development model for nurses. *Nurs Sci Q*.2007;20(3):237-253.
39. Pager S, Holden L, Golenko X. Motivators, enablers, and barriers to building allied health research capacity. *J Multidiscip Healthcare*.2012:53-59.
40. England NHS, Improvement NHS. Chief Nursing Officer for England's strategic plan for research. *NHS England, London: NHS England and NHS Improvement*.2021.
41. Health Education England. Allied health professions' research and innovation strategy for England. <https://www.hee.nhs.uk/our-work/allied-health-professions/enable-workforce/allied-health-professions%E2%80%99-research-innovation-strategy-england>.2022.
42. Sanders J. Nursing and Allied Professional Research at St Bartholomew's Hospital: Introduction. *Br J Card Nurs*.2022. *Published online 26.04.22*. 17 (4). <https://doi.org/10.12968/bjca.2022.0033>
43. Roomaney T, Buck J, Sanders J. (2022). Nursing and Allied Professional Research at St Bartholomew's Hospital: Early career nurses. *Br J Card Nurs*.2022. *Published online 30.06.22*. 17 (7) <https://doi.org/10.12968/bjca.2022.0046>
44. Long A, Buck J, Sanders J. Nursing and allied professional research at St Bartholomew's Hospital: Allied Professional Research Lead Role. *Br J Card Nurs*.2022. *Published online 20.08.22*. 17 (8). <https://doi.org/10.12968/bjca.2022.0067>

45. Damianopoulos A, Welch A, Buck J, Sanders J. Nursing and allied professional research at St Bartholomew's Hospital: Ward managers and the creation of a positive ward environment. *Br J Card Nurs*.2022. Published online 28.07.22. 17 (7)
<https://doi.org/10.12968/bjca.2022.0056>
46. Sanders J, Malcolmson J, Philpott-Jones S, Kelly J. Embedding post-doctoral clinical academic careers in practice: The St Bartholomew's Hospital model. *Journal of Clinical Nursing*.2022;31(3-4):427-434. (published online 1 December 2020).
<https://doi.org/10.1111/jocn.15575>.
47. Farmer E, Weston K. A conceptual model for capacity building in Australian primary health care research. *Aus Fam Phys*.2022;31(12):1139–1142.
48. Ski CF., Cartledge S, Foldager D, Thompson DR, Frederick S, Ekman I et al. Integrated care in cardiovascular disease: a statement of the Association of Cardiovascular Nursing and Allied Professions of the European Society of Cardiology. *Eur J Cardiovasc Nurs*.2023:zvad009.
49. Hendriks JM, Heidbüchel, H. The management of atrial fibrillation: An integrated team approach—insights of the 2016 European Society of Cardiology guidelines for the management of atrial fibrillation for nurses and allied health professionals. *Eur J Cardiovasc Nurs*.2019;18(2):88-95.
50. Gallagher C, Elliott AD, Wong CX, Rangnekar G, Middeldorp ME, Mahajan R, ... Hendriks JM. Integrated care in atrial fibrillation: a systematic review and meta-analysis. *Heart*.2017
51. Benjamin EJ, Al-Khatib SM, Desvigne-Nickens P, Alonso A, Djoussé L, Forman DE et al. Research priorities in the secondary prevention of atrial fibrillation: A National Heart, Lung, and Blood Institute virtual workshop report.2021.
52. Segrott J, McIvor M, Green B. Challenges and strategies in developing nursing research capacity: a review of the literature. *I J Nurs Stud*.2006;43(5):637-651.
53. Ward EC, Hargrave C, Brown E, Halkett G, Hogg P. Achieving success in clinically based research: the importance of mentoring. *J Med Radiat Sci*.2017;64(4):315-320.
54. Dang D, Dearholt SL, Bissett K, Ascenzi J, Whalen M. *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines*.2021. Sigma Theta Tau.
55. Käser M, Maure C, Halpaap BM, Vahedi M, Yamaka S, Launois P et al. Research capacity strengthening in low and middle income countries—an evaluation of the WHO/TDR career development fellowship programme. *PLoS Neglected Trop Dis*.2016;10(5):e0004631.
56. Freshwater D, Sherwood G, Drury V. International research collaboration: Issues, benefits and challenges of the global network. *J Res Nurs*.2006;11(4):295-303.
57. Lauck, S. B., Saarijävi, M., & Rasmussen, T. B. (2023). Moving evidence from publication to practice: opportunities for accelerating knowledge translation in cardiovascular care. *European Journal of Cardiovascular Nursing*, 22(5), e33-e33.

58. The Methods Corner – new section in the EJCN. *Eur J Cardiovasc Nurs.*2020;19:366-366. DOI: 10.1177/1474515120908162
59. Borregaard B, Massouh A, Hendriks J, et al. The X-factors of PhD supervision: ACNAP top 10 tips on choosing a PhD supervisor. *Eur J Cardiovasc Nurs.*2021; 21: 399-401. DOI: 10.1093/eurjcn/zvab081.
60. Fredericks S, Ski C, Taylor RS, Uchmanowicz I, Gomes AF, Goossens E, ... Sanders J. (2022). ESC Nursing and Allied Professional Training grants: 10 top tips for enhancing funding success!. *Eur J Cardiovasc Nurs.*2022;21(1):92-92.
61. Bligh J, Developing research capacity. *Med Educ.*2000;34 (1):2–3.
62. Goodolf DM, Godfrey N. A think tank in action: Building new knowledge about professional identity in nursing. *J Prof Nurs.*2021;37(2):493-499.
63. Jackson D. Servant leadership in nursing: A framework for developing sustainable research capacity in nursing. *Collegian*, 15(1), 27-33. Jennings, C., & Astin, F. (2017). A multidisciplinary approach to prevention. *Eur J Preventative Cardiol.*2008;24(3_suppl):77-87.
64. Britton CR, Rathinam S, Birchall M, Iles-Smit, H, Krishnamoorthy B. Barriers to research progress for perioperative care practitioners working in cardiothoracic surgery. *J Perioperative Pract.*2024;34(5):146-153.